

R E M A R K S

Claims 1-37 are in the case. The novelty of Claims 1-23 and 37 is noted with sincere appreciation.

The amendment to the Specification corrects a clerical error.

Objection to Claims 2-3 and 25-26

Claims 2-3 and 25-26 are objected to as being unclear as to whether the phrase "formed from" is intended to be an open or closed expression. When these claims are read in light of the Specification, it is clear that an open expression was intended. Support for an open expression is found in the Specification for example at Page 2, paragraph 0006, where it is stated that "the composition is comprised of a sulfamate stabilized bromine-based breaker." The Examiner's interpretation that the phrase "formed from" was intended to be open in these claims for purposes of examination is appreciated. Withdrawal of this objection is deemed appropriate, and is respectfully requested.

Objection to Claims 14-16

The objection to Claims 14-16 as being in improper dependent form for failing to further limit the subject matter of a previous claim in regard to the expression "well fluid" has been rendered moot by the amendments to Claims 14-16. Claims 14-16 now recite "fracturing fluid" rather than "well fluid." Support for the amendments to Claim 14 and 15 is found on Page 6, paragraph 0016 of the Specification. It is clear from these portions of the Specification that the term "well fluid" was inadvertently used in place of the term "fracturing fluid." For Claim 16, support for the amendment is found at Page 6, paragraph 0017. The Examiner's interpretation that the term "fracturing fluid" was intended in these claims for purposes of examination is appreciated. As amended, Claims 14-16 are in proper dependent form, and this objection should be withdrawn.

Rejections under §102(a), §102(b), §102(e), and §102(f)

Claims 24-33 stand rejected under 35 U.S.C. §§ 102(a), 102(b), 102(e), and 102(f). The references cited in the various rejections are Moore et al. (U.S. 6,068,861); Yang et al. (U.S. 6,287,473); McKinnie et al. (U.S. 6,506,418); and Nalepa et al. (U.S. Pat. App. Pub. 2004/0022874). Claims 34-36 stand rejected under one or more of 35 U.S.C. §§ 102(a), 102(b), 102(e), and 102(f) citing one or more of the same references. It was felt that the various §102 rejections and the references cited for each rejection would be better illustrated in tabular form, as presented in the Table below.

TABLE

Rejection under	Claims	Reference
§ 102(b)	24-35	Moore et al. (U.S. 6,068,861)
§ 102(b)	24-34, 36	Yang et al. (U.S. 6,287,473)
§ 102(b)	24-34	McKinnie et al. (U.S. 6,506,418)
§ 102(a)	24-33, 36	Nalepa et al. (U.S. Pat. App. Pub. 2004/0022874)
§ 102(e)	24-33, 36	Nalepa et al. (U.S. Pat. App. Pub. 2004/0022874)
§ 102(f)	24-35	Moore et al. (U.S. 6,068,861)
§ 102(f)	36	Nalepa et al. (U.S. Pat. App. Pub. 2004/0022874)

All of these rejections are respectfully traversed.

The characterization that the compositions of Moore et al., Yang et al., or McKinnie et al. "would of course be suitable for use in decreasing the viscosity of polysaccharide based aqueous fracturing fluids" and the characterization that the "compositions [of the invention] are strong enough oxidizers to provide some degree of viscosity reduction even at the levels usually used for biocidal activity" are objected to. The references cited in the §102 rejections do not make such statements.

Regarding the rejections under §102(f), the Examiner's statement on Page 8 of the Office Action that no accusation of impropriety is intended on the part of the Examiner because the situation may simply have occurred because Applicant was not aware of the principle set forth in the *Pearson* case or for some equally innocent reason, is sincerely appreciated.

As amended, Claim 24 now recites a composition comprising a sulfamate stabilized, bromine-based breaker and an aqueous polysaccharide fracturing fluid rather than a composition for use in decreasing the viscosity of an aqueous polysaccharide fracturing fluid. Support for the amendment to Claim 24 is found in Examples 1-3, where aqueous samples having Wellguard 7137TM (a sulfamate stabilized, bromine-based breaker) and xanthan or guar (to constitute the polysaccharide fracturing fluid) were formed. It is believed that the amendment to Claim 24 has rendered all of the §102 rejections moot, as none of the four references cited teaches a composition having a sulfamate stabilized, bromine-based breaker and an aqueous polysaccharide fracturing fluid. The withdrawal of all of the §102 rejections is thus respectfully requested.

Rejection under §103(a)

Claims 1-37 stand rejected under 35 U.S.C. § 103(a) by Yang et al. (U.S. 6,287,473) in view of Borchardt (U.S. 4,524,003), Moore et al. (U.S. 6,068,861), and Murphey et al. (U.S. 6,143,698). This rejection is respectfully traversed. There is no motivation or suggestion to combine these four references except through hindsight reasoning, which is well established to be impermissible.

There is no reference in Moore to well fluids, and thus there is no motivation or suggestion to combine Moore with either Borchardt or Murphey.

As the Examiner states, Yang does contain a statement about oil field waters (column 3, lines 22-25). On the surface, this might possibly appear to provide some conceivable motive to combine Yang with Borchardt and/or Murphey. However, the statement in Yang refers to *produced* oil field water. Produced oil field water is an oilfield term of art meaning water that

comes out of the ground in conjunction with the oil and/or gas being produced by a well. As is well known in the oilfield art, produced oil field water tends to be contaminated with oil and other things, and is generally not desirable for use in well fluids, including fracturing fluids. Well fluid is a term in the oilfield art for a fluid that is added to a well (in contrast to a produced fluid, which comes out of a well). Both Borchardt and Murphey are directed to well fluids. There is no motivation for one of ordinary skill in the art to combine Yang with either Borchardt or Murphey.

Borchardt states that "Other additives such as biocides, surfactants and the like also can be admixed with the viscous aqueous fluid" (column 5, line 49, to column 6, line 2). This is the only reference to biocides in Borchardt. As the Office Action states, this teaching in Borchardt is general and not specific to any type of biocide. No motivation is provided for choosing any particular class of biocide, including halogen-based biocides. Further, there is no teaching or suggestion in Borchardt that decreasing the viscosity of the well fluids employed therein is a desirable result. Borchardt also teaches away from combination with Yang and Moore because an acid can be included with the well fluid (column 4, lines 8-18; Claim 13), while Yang and Moore both employ a pH above 7 for their biocides. Borchardt additionally teaches away from combination with Yang, Murphey, and Moore, because Borchardt prefers nonoxidizing acids (column 4, line 18), while Yang, Murphey, and Moore all utilize oxidizing biocides. Due to the lack of motive to combine and the teaching away, the combination with Borchardt is improper.

On Page 10 of the Office Action, it is stated that it is well known that oxidizing agents are often used as breakers. This statement is objected to because not all oxidizing agents function as breakers for polysaccharide fracturing fluids. In Murphey et al., acids and/or oxidizing agents that have been used previously as breakers are discussed (column 1, line 66 to column 2, line 14). The breaker in Murphey is preferably used at a pH from 3 to 7. In contrast, the present invention prefers the breaker to be at a pH of 7 or higher. Murphey's highlight of acidic treatments from the prior art and the preference for acidic pH therein teach away from combination with Yang and Moore, which both teach that the biocides taught therein are best used at a pH of at least about 7. Thus, Murphey does not achieve an advantage realized by the present invention, namely

that the possibility of corrosion of metal pipe is minimized. Another advantage not realized by Murphey but achieved by the present invention is the flexibility of allowing the breaker to be combined with the fracturing fluid without adverse effect (in particular, without premature decrease in the viscosity of the fracturing fluid) before the fracturing fluid is sent downhole. In Murphey, the breaker must be sent downhole after the drilling fluid has been sent downhole. Further, nowhere in Murphey is there a suggestion that the system described therein is inadequate in any way, and in no instance is any benefit from a pH higher than 7 taught or suggested in Murphey. Since there is no motivation to modify the teachings of Murphey, one of ordinary skill in the art would not have combined Murphey with Yang, Moore, and/or Borchardt.

For the above reasons, this obviousness rejection combining Yang, Borchardt, Moore, and Murphey does not make a *prima facie* case of obviousness, and should be withdrawn.

Rejections for nonstatutory obviousness-type double-patenting

Claims 3-12, 16-23, and 26-35 of the present application are rejected under nonstatutory obviousness-type double-patenting over Claims 1, 4-6, 18-21, 23-25, 36-38, 41-43, 46-49, and 51-54 of Application No. 10/138,664 (as amended on June 10, 2005). Enclosed are a Terminal Disclaimer document containing a disclaimer over Application No. 10/138,664, together with the usual cover sheet and a paper authorizing payment from a Deposit Account of the requisite fee for recording the Terminal Disclaimer. Thus, this rejection no longer applies and it is requested that this rejection be withdrawn.

Claims 24-34 of the present application are rejected under nonstatutory obviousness-type double-patenting over Claims 1-41 of Application No. 10/327,563. This rejection is respectfully traversed. Claims 24-34 of the present application are submitted to be patentably distinct from the claims of Application No. 10/327,563. While it is understood that the purpose of nonstatutory double-patenting rejections is to prevent undue prolonging of the monopoly granted by a patent, it is believed that allowance of Claims 24-34 without a terminal disclaimer over Application No. 10/327,563 will not have such an effect. Claims 1-41 of Application No. 10/327,563 are drawn to blending a sulfamate-stabilized bromine-based biocide with injection

water in a process for secondary oil and/or gas recovery. Claims 24-34 of the present invention are drawn to methods comprising mixing a sulfamate stabilized, bromine-based breaker with an aqueous polysaccharide fracturing fluid for providing a controlled rate of viscosity decay. It is well known in the art that fracturing fluids serve to break up (fracture) rock formations, while injection water is used to pressurize a producing well to force more oil and/or gas production. Thus, Claims 24-34 of the present application are patentably distinct from Claims 1-41 of Application No. 10/327,563. Therefore, as no improper prolonging of patent term will occur if the present claims are allowed without a terminal disclaimer over Application No. 10/327,563, reconsideration and withdrawal of this rejection is respectfully requested.

In light of the foregoing remarks, the case is believed to be in condition for allowance. Prompt notification to this effect would be sincerely appreciated.

If any matters remain that require further consideration, the Examiner is requested to telephone the undersigned at the number given below so that such matters may be discussed, and if possible, promptly resolved.

Please continue to address all correspondence in this Application to Mr. Edgar E. Spielman, Jr. at the address of record.

Respectfully submitted,



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